National Institute of Environmental Health Sciences

Changing distributions of ticks: Causes and consequences

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Abstract:

Today, we are witnessing changes in the spatial distribution and abundance of many species, including ticks and their associated pathogens. Evidence that these changes are primarily due to climate change, habitat modifications, and the globalisation of human activities are accumulating. Changes in the distribution of ticks and their invasion into new regions can have numerous consequences including modifications in their ecological characteristics and those of endemic species, impacts on the dynamics of local host populations and the emergence of human and livestock disease. Here, we review the principal causes for distributional shifts in tick populations and their consequences in terms of the ecological attributes of the species in question (i.e. phenotypic and genetic responses), pathogen transmission and disease epidemiology. We also describe different methodological approaches currently used to assess and predict such changes and their consequences. We finish with a discussion of new research avenues to develop in order to improve our understanding of these host-vector-pathogen interactions in the context of a changing world.

Source: http://dx.doi.org/10.1007/s10493-012-9615-0

Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Researcher

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Tick-borne Disease

Tick-borne Disease: General Tick-borne Disease

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content